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The problem of providing adequate health services for rural America is many fold and will require the combined efforts of everyone to approach a satisfactory solution. A broad overview of all facets of the problem is presented. Listed and briefly discussed are goals which must be achieved to insure permanent improvement. Three general directions to be pursued in order to accomplish the goals are given. Other views and suggested solutions are analyzed in this document by Donald L. Graves, M. D., in his paper titled "A Model for the Practice of Community Medicine," and by George T. Harrell, M. D., in his paper, "Rural and Small Town Practice--Future Training and the Role of the Family Physician." (DB)

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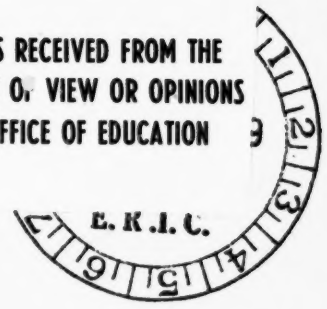


# "PLANNING FOR RURAL HEALTH SERVICES"*

A. L. Chapman, M.D., M.P.H.

## Introduction

Rural people have been subsidized by nature to compensate for the fact that their earnings are generally lower than the earnings of people who live in cities. They breathe cleaner air and indulge in more physical exercise. As a result, they enjoy heartier appetites and sounder sleep. And they are much closer to the fresh fruits of nature.

For decades their basic good health, a product of a challenging but stimulating environment, helped to compensate for what they lacked in the way of medical care facilities. As long as medicine remained in a fairly primitive stage and had few specific remedies to offer, the person living in rural areas was not too seriously disadvantaged.

However, the advent of the scientific-technologic revolution following World War II drastically changed the situation. Medical research began to fathom the mysteries of many diseases long considered to be incurable. New and more effective treatment methods were developed. Ways were found to detect diseases earlier and to prevent a number of them.

The relative lack of medical and health facilities in rural areas took on new importance. Rural people whose lives could have been saved if they had access to modern medical care facilities died prematurely.

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Others found themselves needlessly disabled. Of particular importance was the shortage of physicians in rural areas. There are only half as many physicians and dentists per 1,000 people in rural areas as there are in urban areas. The ratio is worsening each year.

The Application Gap

The continuing expenditure of more than a billion dollars a year for medical research suggests that the widening gap between current medical knowledge and its application will grow wider in the years ahead. Community leaders, legislators, educators, and physicians sense the magnitude of this problem. Evidence of their frantic attempts to resolve it are frequently seen.

Where once we suffered from an abundance of ignorance we are now uncomfortably distended by a plethora of knowledge.

Relief has been sought through Federal legislation. Act after act has been churned out of the legislative mill -- Medicare, Comprehensive Health Planning, Regional Medical Programs, and many, many others. These new programs have been properly sired by knowledgeable and well-intentioned legislators. Too often, however, these acts have been designed to achieve a more equitable redistribution of our existing medical resources through cooperative planning than to increase the supply of well-trained physicians and other vitally needed categories of health personnel. Planning the wise use of health personnel and facilities is essential but increasing the supply of qualified manpower is of equal importance at this time.

A New Era

One milestone in medical history that symbolizes the fantastic pace of medical research is a well-publicized event that took place in Bethesda,

Maryland, several years ago. Electrocardiograms taken in Paris, France, were transmitted via Telstar to the National Institutes of Health. There they were read by cardiologists. The results were bounced back to Paris within the hour.

The long courtship of medicine and engineering has at last been consummated in marriage. Already, the offspring of this fertile union are lustily crying for their rightful place in the sun.

Some Rural Problems

Despite the promise of wonderful things to come, of artificial hearts, modified genes, and organ transplants, the everyday medical problems of rural areas still remain about the same. Such questions are still being asked us:

1. How can rural residents be motivated to seek periodic health examinations and how, if such examinations are desired, can they be provided?

2. How can the services of rural physicians be extended by the planned use of paramedical personnel?

3. How can the facilities and services of community hospitals be upgraded so that they can better serve the complex health needs of rural residents?

Too many stroke patients in rural areas die because they do not have access to the types of specialized care they need. Women die of cancer of the breast -- women whose lives might be spared if mammography examinations were readily available to them. The lives of victims of coronary attacks are prematurely lost because many local hospitals do not have intensive coronary care units or have not developed plans to transport coronary patients to localities where such units exist. And accidents take a needlessly high toll of life in many rural areas because the handling of emergency cases is given too little thought and attention.

Rural Physicians

What about the supply of physicians? Is it increasing in accordance with the need? Unfortunately not. Although in recent years a number of new medical schools have been opened the increasing number of graduates will merely slow down the rate of decline in the physician/population ratio. Enrollment in many medical schools has not been significantly increased in the last decade.

The tendency for young physicians to specialize also penalizes rural residents, for specialists are attracted to urban areas, to larger hospitals, and medical centers. Of the 7500 medical graduates each year only about 18% plan to go into general practice; as opposed to 75% in 1940. Ways must be found to attract more of these young physicians to practice in rural areas. Group practice may provide a partial answer.

A study done in New York State elicited five of the more important reasons why young physicians avoided rural practice.

1. The hours of work demanded of rural physicians are long and unrelenting.

2. They do not have adequate time to study, attend meetings, or to keep pace with advances in medical practice.

3. They are often unable to obtain hospital appointments.

4. They miss the educational stimulus of consorting with other physicians in a hospital or clinic setting.

5. They and their families miss the cultural opportunities found in large cities.

Low income apparently was not a major factor in the development of an anti-rural bias on the part of these young physicians.

Since it is unlikely that the current shortage in the supply of physicians will be quickly remedied, it is essential that local areas,

through intelligent planning, in cooperation with others, attempt to overcome these objections one by one.

Rural Poverty

The need to improve the quality and increase the supply of health services in rural areas can be documented.

Proportionately, twice as many poor families live in rural areas than live in urban areas. A third of rural families have an income of less than $3000 a year. Only half of rural families have hospital insurance compared to 75% of urban families.

Poverty feeds on poverty.

Because of geographical and cultural isolation coupled with a lower standard of education, poor people find it hard to break the vicious cycle of inherited poorness. Unfortunately the futility, apathy, and passivity that poverty breeds doesn't decrease fertility rates. There has always been an ample number of replacements for rural poor people.

The housing of rural poor families is marginal at best. Sewage disposal often is of a primitive nature. Garbage dumps, polluted water, rats, and flies conspire to foster diseases to which poorly nourished, ill-clothed people, have a lowered resistance.

Individual poverty contributes to a greater evil -- community poverty to the creation of poor communities that can ill afford the hospitals, sewage systems, and other health services and facilities needed to keep people well.

Complex Causes of Ill Health

The causes of ill-health among the rural poor are multiple and complex -- often interdependent.

Isolation, poor education, low incomes, chronic malnutrition, and many other factors increase the opportunities for exposure to infectious diseases and decrease resistance to them. These same factors also predispose to chronic degenerative and metabolic diseases of adult life.

This points up the obvious fact that good health cannot be achieved in a cacuum. Attention must be paid to other factors -- to non-health factors. Unless this is done, any improvement in the health status of the community is apt to be temporary.

The life of a child, dying of pneumonia, may be spared by a single injection of an antibiotic but this by no means insures the continued good health of the child, particularly if the child has been born to poor parents in a rural area. That is why planners, in planning for health, must not be myopic. They must be concerned with many interrelated problems, such as the income and educational level of the residents of their planning area.

Large expanding industries, desirous of opening new plants in rural areas, are often discouraged by the lack of adequate sewage disposal facilities, the unavailability of good quality water in adequate amounts, and rustic school systems.

If health planners joined with other planners to mobilize funds, on a regional basis, to develop modern sewage facilities, better water supplies, and modern schools, the needs of these large industries could be met. Many would locate in rural areas. Sizable new payrolls and additional real estate taxes would provide income now lacking in these small rural communities -- income that could finance better hospitals, modern health departments, and improved school systems.

Health Goals

Big problems merit bold solutions.

Rural poverty and ill health constitute twin problems that cannot be solved by timid attempts at pacification. Some traditional concepts about the way medical knowledge is applied for the benefit of people will have to be modified, if not discarded. New concepts of care will have to be embraced.

I have listed nine goals that must be achieved to insure a permanent improvement in the health status of rural people:

1. Farm incomes must be raised. Higher farm incomes will permit rural people to purchase better health care. It will also help to expand the tax base of rural communities so that they can afford better health facilities.

2. Educational opportunities and teaching facilities for young people in rural communities must be made equal to those available to young people who live in cities. The mechanization and automation of farming and the growth of large farm complexes will, in the future, place a premium on good education and training.

3. Regional planning, planning on a broad scope, will be needed to overcome the handicaps of political boundaries established at a time when a ten mile trip to town was an all-day event. Planning no longer can be limited to towns, and boroughs or even to cities.

   The source of polluted air and water is often states away. Medical centers may be counties removed from the rural people who use them but modern roads now make it feasible to travel long distances to obtain high quality medical care.

   Spin-offs from the technological revolution are dynamiting the once impregnable walls of rural provincialism. To survive is to cooperate. Cooperation of a very tangible nature among contiguous political jurisdictions is essential for the development of a good health care system.

Many local areas are protected by an encircling wall of organizational barbed wire painstakingly erected to protect self-conceived local interests. This wall of barbed wire will have to be breached before area-wide coordinated action in the health field can be effectively implemented.

4. Planning for health care in the future will have to be comprehensive in nature. Such planning should provide for an adequate number of general practitioners, for medical centers in community hospitals, and for referral to university teaching hospitals of those patients who need the highly specialized types of treatment there available.

   A comprehensive plan should also provide for home health services for those who can be satisfactorily cared for out of a hospital. Out-patient services, where they exist, need to be reexamined to determine whether they are meeting the real needs of rural people.

5. Provision should be made in the plan for periodic screening examinations, the potentialities of which have been poorly developed under our present system of medical management.

   The early detection of chronic disease can shorten the duration of illness, reduce demands on hospitals, and lighten the burden placed on over-worked physicians.

6. Many of the more prevalent of today's diseases represent, to some degree at least, a personal failure on the part of people to obey the basic rules of sensible living.

   Overeating, smoking, overindulgence in alcohol and coffee, lack of sleep, emotional stress, all accelerate the physiologic degeneration normal to the aging process.

   Therefore, a much more sophisticated -- a much more motivating -- type of public health education will have to be devised. Its roots should be in our schools, its branches should protrude from our television sets right into our living rooms.

7. Family planning -- for more, fewer, or merely better spaced children -- can play an important role in planning for a healthier community. Many of our current health problems are unnecessarily compounded by the unplanned entry into the world of

large numbers of children doomed to poverty and ill-health before they utter their first cry.

Have you ever wondered who protects the rights of children sentenced to a life of bondage, even before conception, a bondage little different from that of Pharaoh's slaves?

8. Expanded training facilities will be vital. Hospitals without physicians and nurses, and laboratories without technicians, can contribute little to better health.

9. Good emergency care services are essential. Nowhere has voluntary effort been more effective in developing emergency transportation than in rural areas. This is good and should continue. But proper motivation must be butressed by good training and proper coordination, or lives will continue to be unnecessarily lost because of the inadequacies of emergency care systems.

<u>To Achieve These Goals</u>

1. In order to achieve these goals planning will be needed -- planning that is locally conceived to meet local needs in a way that is acceptable to local people but -- these plans should be in harmony and must interdigitate with plans developed by surrounding communities. In other words, there must be areawide or regional as well as local planning. Without this, local plans may retard rather than accelerate progress towards goal achievement.

   In developing local plans representatives of the public must actively participate. Unless they do, the implementation of plans, once they are developed, will be much more difficult and time-consuming.

   Funds are now being made available by the Federal government through the state health department to support comprehensive health planning. Other funds are also being made available for a more categorical type of planning through the Regional Medical Programs.

2. Success in bringing health services up-to-date will be dependent to a great degree on the willingness of local authorities to work together.

   The spirit of competition that has made America great is evident when rival teams pit their skills against each other. This is good. It generates local pride. It stimulates the competitors to greater effort.

   But this same type of competition, when carried to extremes, can successfully prevent the development of vitally needed cooperative efforts between towns, boroughs, counties, and cities, so that no big, no important, community goals can be achieved.

   The solution of the technological problems involved in forging a new and better health system will be far less troublesome than solving the problems inherent in getting people to work harmoniously and selflessly together to achieve common goals.

3. New facilities and services will have to be paid for. Some of the needed funds can be obtained from Federal and state sources. Some will have to be obtained locally. But by and large the improvement of health services and facilities in rural areas is dependent upon the economic well-being of its citizens, its industries, and its farms.

Summary

For decades a tide of people, primarily young people, has been ebbing from rural areas toward the cities. There is evidence that this tide may soon be reversed.

Industry, bedeviled by air and water pollution, traffic congestion, and mounting costs in cities, is looking longingly toward the open spaces out beyond the fringes of the city.

Whole new cities are being planned and built in several parts of the country. Before these cities are built it is essential that comprehensive health plans be formulated which, when implemented, will insure the residents of these cities a healthy life. These health

services, designed for a complete city, to provide total care for a specified number of residents, are the kind of health services that some day will be made available to rural people.

The farms of tomorrow will be larger than they are today but the total acreage committed to farming will probably not increase substantially. Interspersed between the larger, more mechanized and often automated, farms of the future will be industrial complexes that have fled the city. The introduction of these industrial complexes into rural areas will provide a higher income for the area as a whole, will expand local tax bases, and will provide natural loci for the modern health and medical centers destined to become the hub of tomorrow's health care system.

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# "A MODEL FOR THE PRACTICE OF COMMUNITY MEDICINE"*

Donald L. Graves, M.D.

Frenchburg, Menifee County, Kentucky, is in eastern Kentucky in Appalachia, which is in the heart of the coal country on the edge of the Cumberland Mountains in the Daniel Boone National Forest, and an hour and a half drive from the center of Lexington which, as you know, is in the heart of the Bluegrass.

There are about 5,000 persons within a 12-mile radius. Frenchburg is the county seat of a few hundred people and the only organized town in the county. At distances of about 15 miles in each direction are communities of a few hundred, rather dispersed, and not organized.

I'm the only resident physician. Three years ago a physician returned to his home at the edge of the next county and we practice together now.

None of the satellite communities have physicians but one has a registered nurse, one a practical nurse, and the others have nurses' aides. These share their interests with us in Frenchburg and also with the county seats of other counties about 15 miles beyond them.

Because our conventional hospital was closed last year, we have an excess of nursing personnel not being used, so we are assuming leadership in covering our county and satellites with this rural community health umbrella coverage which we are in the midst of implementing.

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*Presented at the 22nd National Conference on Rural Health sponsored by the AMA Council on Rural Health, Philadelphia, Pennsylvania, March 22, 1969.

I believe we share a great many common problems with the majority of small rural communities in America. Certainly the entire Appalachian area of which we are a part is similar, except for areas which are exclusively coal mining. On other areas in the nation with special rural problems like migrant workers, I do not comment. Therefore, I believe many of our problems and answers to them could be considered similar. I believe we have discovered and would like to implement a number of improved health practices. I personally have travelled in 48 of the 50 States -- and hope to see Maine and New Hampshire some day. Possibly the great distances and sparse settlement of the mountain and desert States and Alaska have similar problems but airplanes and short wave communications bring even them into similar perspective.

We also share with many other areas the phenomenon of great numbers of our rural people moving to the city and settling into ghetto communities there. Following this, there is a constant back and forth movement of these people between their rural home and relatives and the city where jobs are available at intervals.

Therefore, it is not unreasonable to believe that the principles of the medical rural center I describe could be applied to the ghettos in the city as it is a fact that even though a large university or metropolitan medical center may be physically a mile or two away, it might as well be a hundred. Ghettos need this community approach as essentially as do we in the country. And also to some extent in midwestern and eastern cities served by Appalachia, such centers could be a source of common knowledge and a point of contact of familiarity if both rural and ghetto medical centers were similarly organized.

This has to be kept simplified for this particular presentation, so may I say that the following 7 comments are among the chief causes of rural medical and health problems:

1) lack of facilities of some or many kinds;

2) lack of personnel to cover the conventional separated institutions and services;

3) fragmented facilities and services where some are available;

4) lack of cooperation among various agencies of health and medical providers and between private and public services;

5) lack of we "rural experts" on most planning boards at state and national levels, and on "standard" boards;

6) presence of city-oriented personnel at the university, state, and Federal level and in those spots where it counts; and

7) simple horizontal distances in the country (and vertical distances in the ghettos) although in Appalachia as well we have quite a few vertical distances.

I will mention two examples that should illustrate some of these problems. You know cities can have hospitals, fully staffed health departments, nursing homes, retirement homes, venereal disease treatment centers, mental health centers, alcoholic treatment centers, and a host of others. Rural areas CANNOT support <u>one of a kind</u> of these single conventional institutions. BUT, if many of these services were combined in one medical-health center, sharing personnel and space, then a great many of these services would be available to the rural community. If those in authority in government agencies, from whence must come some of our help, would consider this principle, it would solve a lot of problems compared to the small number it would create.

Secondly, I will mention what I have for years been calling the "Cadillac Syndrome." Present standards of hospitals, for instance, are only at one level -- that of the highest university metropolitan center in the nation. Only a tiny percentage of hospital patients need the $100 a day room -- but the "Cadillac Syndrome" insists that all hospital rooms be this top type. Where this affects us is that they insist the rural hospitals have the same levels and standards. The ingrown toenail and tonsil have to be removed under the same physical environment of an operating room where open heart surgery is done. There are no other standards. This may be theoretically desirable, but practically, it is impossible.

The planners will not discuss with you Ford, Plymouth, or Chevrolet standards. They will look with suspicion at you if you mentioned a Volkswagen and would put you under investigation for taking advantage of the poor if you whispered the possibility of maybe using a second-hand car.

If this attitude persisted in other fields, we would never go to the moon before every family in America had a Cadillac. We would never think of exploring the vast ocean reaches until everyone on land had a Cadillac.

So, why in the vast health and medical field, where nature does most of the work and man takes the credit anyway, do the planners insist on Cadillacs and caviar, when all we want and need is meat and potatoes? If subsidies are available, then help us with a little fruit and vegetables -- not hors d' oeuvres and rare wine.

This came mighty close to home when last year in our 5-county rural

area, 3 small hospitals of about 30 beds each were closed. As an optimistic footnote, it may be that Public Law 89-749 (Comprehensive Health Planning and Public Health Service Act of 1966) signals an about-face in philosophy which might permit progress in this area.

The heart of our proposal is an actual medical center in one location. The only other alternative is the close liaison and direction under the medical team of existing facilities if it may be impractical to change or physically combine them at the moment.

Such a center would be large enough with its combined services so it would be economically feasible and self-supporting. This single principle is the only new and, so far not generally accepted nor approved, concept. But to preserve or salvage present coverage or promote new coverage in rural areas of this vital area of community health, I believe this principle of multi-services must be approved and promoted.

I am speaking mainly of the smaller communities of several thousand that could be considered a 1 or 2 or 3 physician size. These same principles could apply to larger areas still rural, but if you get much larger, then you get to the size that probably could support the more conventional services individually.

Our proposals and practices aim at <u>professional effectiveness</u>, and <u>organizational efficienty</u> at an <u>economically feasible</u> cost.

I want to list a dozen things that we are aiming at, with a brief discussion of each. All of them can be incorporated into this rural medical center that we are planning and would be a model for the practice of community medicine by the health team and a source of comfort, convenience, and service for the consumers. In a very loose way, possibly

this could be compared to the courthouse functions in the field of local governmental services.

1) Care of the Seriously Ill - This possibly is the first thought of most people when health or medical care is mentioned. The heart attack, acute appendicitis, and all major surgery and accidents are examples. Statistically, these are in a very small minority, less than 10% of the reasons patients first see a physician. After emergency attention, they are referred to the larger medical center where, depending on distance, their family physician might or might not help with their care. At least he would be kept informed of their progress and would assume care when they come back, and the city or regional specialist and the rural family physician would share in the care of such major problems which is the best coverage.

2) Care of Ordinary Ills - About 90% of first contacts are "ordinary" problems of ordinary people which can be cared for by ordinary physicians in ordinary medical offices and facilities in the ordinary community, without highly specialized personnel, large distances, or $100 hospital rooms.

3) Emergency Calls (After Hours and 24-Hour Coverage) - With the combined services, there would be enough personnel so that someone would be on duty and awake 24 hours a day. These would be nurses trained to be physicians' "assistants" so that problems could be answered, so the needs of a few "hospital" beds could be covered, normal obstetrics served, night calls from the nursing home patients or personal care patients could be answered. These nurses would have their aide assistants as needed.

4) Long-Term Medical and Nursing Care - Here again, why should the specialist in the city "waste" his valuable time and why should the $100 hospital bed be "wasted" when the patient is over the specialized care and just needs some time to recuperate? It will be cheaper and also greatly appreciated by patient and family to be near home for these days between specialized big center necessary care and the return to normal health. A common example is the routine fractured hip of the elderly which really only needs 3 or 4 days in the hospital after which the family physician could follow in the nursing home part of the medical center.

5) Long-Term Personal and Custodial Care - This is probably the greatest single need in America today. Only a very few areas seem to have adequate facilities. Kentucky's recent survey reveals our small county needs 38 such beds. But again, a 38 bed unit, while many of them do exist by themselves, can provide only the simplest custodial care. Combined with other facilities we are mentioning, they could share in all the other services provided by the center. Most important of all are the services being available near "home." Possibly with the exception of a seriously sick or crippled child, the most heart rending field of my knowledge is the shipping off of the elderly to some faraway nursing home or relative to at best a dissatisfied existence and all too often, a "living dead" situation. I'm afraid this is the rule and not the exception as of this date. The combined medical unit I speak of would provide first of all, adequate care and services and beyond that, the extras of home and relatives and friends of a lifetime.

6) Housing for the Aged - This is intimately connected with the previous subject. This need is not so well-documented as others. In rural areas at least and particularly in Appalachia, the elderly want to stay in their own homes to the last possible minute and it may be debatable about providing facilities for a healthy retirement. I speak, however, of the couples or singles usually in late 70's and 80's who may at any time need personal care, but then again, might have many months or even years where they could take care of themselves but would like to give up most of the housekeeping duties and eat in a dining room. This subject, as I say, is poorly documented but again, this is the value of combined services. Motel or hotel like accommodations are physically the same as personal care facilities and this flexibleness could be easily arranged by the architect. A few of these rooms and/or apartments would be feasible with the combined unit while out of the question by themselves.

7) Home Care of the Sick - The Home Health Agency and Visiting Nurse service would us the center for their headquarters. Again, due to combined services, this would be much more efficient use of personnel, as they would be kept busy full-time. Without all these combined services, there is a real question of keeping such nurses busy full-time in rural areas. This policy has been recognized by even Medicare and should be a big boon to rural areas when and if they activate them. Again, many more services could be provided by the Home Health Agency in the above combination than if it were all by itself.

8) Transportation of the Sick - This is a service essential to rural areas to transport sick to the rural medical center and also between the rural medical center and the larger regional and metropolitan centers. I believe this is an area of legitimate need for subsidy by public funds. Too many of these services end up as non-paying. In some areas funeral directors can provide full coverage, but otherwise it is not satisfactory.

9) Preventive Medicine and the So-called "Routine" Public Health Services - Present public health facilities and personnel, when present, are usually a clerk and nurse, and maybe a part-time sanitarian or other personnel shared with other counties, and generally ineffective in many ways. There are state and Federal laws to deal with in this area, but in rural areas it would be so much more efficient and so much more could be done, were the conventional public health services intimately connected and shared and used by the medical team.

10) Satellite Centers - The medical rural center I have been speaking of is itself a satellite of the regional medical center which is a satellite of the university and/or metropolitan medical center. Therefore, at the rural extreme is the satellite of the rural medical center. By this I mean that when one gets 15 miles or more away on bad roads in our area in the winter or wet times, there may be semi-isolation. Many communities that would never be able to have a physician have registered or practical nurses and these, if interested, could be trained by the physician to be his assistant and could handle many things in the satellite or "isolated" community. One registered nurse and I are now setting up such a center. Working with her and with the visiting nurse and home health agencies would give these "isolated" or physician-deficient communities quite a bit of care. Were there no resident nurse, the nurses at the center could rotate out into these communities adding more variety to the experiences of the service-minded nurse and coupled with the right public health attitude, the uses would be multiplied.

11) Better Health for the Non-Sick - Such a center would be large enough to also have the community rooms or auditorium and classrooms for films, health programs, blood mobile visits, x-ray screening programs, university extension services in nutrition, and a clearing house for all the various voluntary programs of heart, cancer, polio, and others. This should also be a center where one could phone day or night to obtain answers to health problems and aid in medical social work, mental health, and consultation clinics. With such a center, almost anything could

be fitted in as the need arose. With the right architectural planning, the various areas could be flexible enough to shift emphasis as the need arose.

12) Data Retrieval - Last, and getting more important all the time, are the problems of medical records and information, and particularly data retrieval. America has, for some time now, been in a mountainous deluge of paper work. It has become physically impossible, due to time and money, to keep up with paper work, let alone to look up old records or compile accurate statistics, or do research.

If some of you are cognizant at all of education in the public health field, you probably are familiar with the University of Kentucky's new medical school and its new department of community medicine initiated by Dr. Kurt Deuschle and Dean W. R. Willard.

At any rate, four years ago in an attempt to answer this problem and to attempt an analysis of my own practice, I requested their assistance and the result was a grant they received to help computerize diagnoses, informational data, and epidemiological data of my practice. I believe we are proving that it is practical even in rural areas and in a busy family physician's practice.

If it proves to be feasible, then you can see it would be a very simple step to all all the medical and health data of the community medical center to the computer bank. Were this available in each county, then the state board of health would have instant knowledge of the state of health and disease in any given area. The imagination has a hard time keeping up with the uses and advantages of this up-to-the-minute health data facility.

Security and privacy of the patient's personal information would, of course, be assured because as is the case now, only you and your physician would have the key to your own personal record and only in cases

of epidemics or catastrophes would there be any need for putting names to the numbers.

So, in summary, we have presented a concept of a community practice of medicine on a practical basis, and ideally located in a rural medical center.

These services will answer the great majority of rural health and medical problems. It should be one of possibly many answers to the best rural health care that is possible and practical.

I commend it to you for thinking and acting.

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# "RURAL AND SMALL TOWN PRACTICE - FUTURE TRAINING AND ROLE OF THE FAMILY PHYSICIAN"*

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The practice of medicine is a social institution which must keep abreast of changing times. Society in this country has been undergoing a revolution which has been accelerated since World War II. The role of the physician has been changing as a result. In the past, the economic trading area and social orbit of a community were determined by transportation, which largely meant the distance a family could go by horse and wagon to buy supplies, go to a wedding or funeral, and return in daylight on the same day. The trading area was based on the cross-roads village with its store, school, church, and if it were a county seat, courthouse. The coming of the automobile and paved roads greatly increased the trading area of a town. At the same time, sources of power were changing from the horse or water wheel for grinding grain to steam and then to electricity to run machines. Hand production in cottage industries was found to be inefficient when compared with larger factory units located in towns or cities.

## Urbanization of Society

The urbanization and industrialization of society has changed the character of agriculture in rural areas. Agriculture, which was formerly the predominant industry in this country, has itself become increasingly

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mechanized. As a result, the role of the family in agriculture has declined, with fewer generations living on a single farm. No longer is the farm unit the number of acres which an individual family could till with its own resources and limited equipment. Farms have become larger, often owned by corporations, are heavily mechanized, and hence require fewer but more skilled workers. The rural population has dwindled in numbers, and the small village is disappearing. The younger people leave the farm in greater numbers at an earlier age to go to college or to the cities to work. As a result, the population remaining in rural areas is rapidly becoming an aged one. When rural people leave individual farms, they go to towns or cities where greater social and cultural advantages may be found. This trend began many years ago and is reflected in the development of consolidated schools. The movement to cities is not unique to this country, but is seen in many developing nations as well. Even those more highly developed countries with strips of industrialized areas and large cities along coasts see this pattern of urban growth with relative population decline in the interior.

Changes in Practice

The patterns for the practice of medicine are changing with the social revolution. In the past, the family physician practiced alone doing general medicine whether he lived in the city or in a rural area. He met all medical needs of the families in the community including obstetrics, emergency care, and repair of trauma. The care of acute illness was done in the home with the help of the family. The training of the physician to meet these relatively simple medical needs was short, predominately didactic, and given almost entirely in a medical school. Subsequently, as anesthesia and aseptic surgical techniques were

developed, small hospitals grew up around the practice of individual physicians. Public hospitals were largely devoted to the isolation and care of infectious diseases or mental illness.

With the increase in the ability of physicians safely to perform more and more complicated surgical procedures, and the beginning control of infectious diseases by an increased standard of living, immunization procedures and chemotherapy, public demand for hospital services increased. Local hospitals were built in rural areas with the financial help of Hill-Burton and other programs. The small size of many of these hospitals, often 25 to 50 beds or less, did not provide adequate facilities for care, such as a blood bank or diagnostic laboratory. Radiologic films and pathologic specimens were sent to nearby larger hospitals where the films were read or tests were completed. The limited number of beds was inadequate to provide for the support of trained specialists who might live in the town and comprise part of the hospital staff. Surgeons, radiologists, pathologists, and other specialists would come on a periodic basis with the pre- and post-operative care, anesthesia, and continuing care given by the family physician. Serious illnesses were cared for, major operations performed, and sophisticated diagnostic procedures done by referral to a regional hospital usually located in a city.

With the increase in specialization, the solo general practitioner found himself increasingly unable to encompass all fields of medical knowledge. Application of basic research findings of the medical and natural sciences, coupled with advanced engineering techniques, permitted spectacular advances in specialty medical care of individual patients

with resulting public demand for access to better-trained physicians. A few groups of specialists practicing together began to appear. The groups served largely for referral of patients for special diagnostic or treatment procedures, but often in lieu of the family physician in less sparsely settled areas. The training of the physician became focused more on the hospital, particularly in the post-graduate years, and was supervised to a great extent by specialists having university appointments.

Location of Practice

Individual physicians now are increasingly reluctant to live and rear their families in small towns or rural areas. The wife often plays a major role in the decision for location of practice. The modern physician wishes to spend more time with his family and to have some regular time off when he is relieved of responsibility for his patients so that he can recuperate physically and mentally. The desire for this pattern of practice has been reinforced by the required period of military service which tends to emphasize the rewards of specialized training. The physician is reluctant to commit himself to 24 hours a day, 7 days a week on-call service. The pressure is not financial, since the family physician doing general practice can quickly achieve higher levels of income in rural areas than those physicians beginning practice in cities.

Various attempts at recruitment of physicians for rural practice through scholarships, loan programs which provide forgiveness for periods of rural practice, or provision at low rent of clinic facilities have been relatively ineffective in meeting the demand. The chief

drawbacks for recruitment and retention seem to be a lack of all of the facilities which the physician has been trained to use, and the absence of supporting personnel. The physician, also, feels a sense of intellectual isolation with the lack of stimulation to keep up professionally and the lack of resources to support a program of continuing education. A frequent question asked is, "Who would care for my patients if I leave the community for a temporary period of post-graduate work?"

The aging of all types of physicians in rural areas has gone on in parallel with that of the general population, but the proportion of family physicians in practice in rural areas and small towns has relatively diminished. Recruitment has not kept up with attrition. Unless some solution is quickly found, a major crisis will occur in the delivery of medical care in rural areas. A very high proportion of physicians now practicing there is over 50 years of age. The crisis clearly will be felt in 10 years, and has already become evident in some areas of the country.

## Solutions

### Facilities

Experience with inefficient small hospitals has pointed toward the need for fewer, larger, better-equipped hospitals serving a greater area. Centralization is feasible since transportation has been vastly improved through the construction of farm-to-market, paved roads. Hospitals of a minimum size of 200 to 250 beds can support specialists who are based there. Emergency care can be improved through adaptation of techniques developed by the military. Differently designed ambulances with sufficient head room to permit trained attendants, comparable to

corpsmen, to stand up and work could be dispatched to the site of an accident or medical emergency. This technique would permit temporary splinting, control of shock and bleeding, maintenance of an airway and resuscitation during transportation to the hospital, if the emergency cannot be handled on the spot. In areas where population is more widely dispersed, helicopter evacuation is practical and quick, though expensive.. The definitive care could be given in the emergency or main operating room of the regional hospital.

Patients and families can more easily come to the physician and his supporting staff than in the past. Increasingly, physicians' offices are clustering around community hospitals in the larger towns. Often, the newer hospitals contain office facilities for group practice, so that the emergency room, clinical diagnostic laboratory and radiology facilities can be jointly used for ambulant outpatients as well as inpatients. Wherever it is not possible for dispersed rural populations to come to a town because of age, infirmity, or depressed economic conditions, techniques can be used to take a mobile office with para-medical personnel and a simple laboratory to the people. House trailers or large vans have been used effectively as teaching laboratories for specialized education in rural school areas, and could be readily adapted to family physicians' offices. In isolated areas without adequate roads, such as the mining camps of Appalachia, a train with a specially equipped railroad car, could be used to get into the distant coves. These mobile clinics probably would not be satisfactory for treatment of major acute illnesses, but could be used for treatment of minor ills, periodic screening examinations, assessment of the status

of chronic illness already evaluated and under treatment, and follow-up of an acute illness which had required hospitalization. In some areas, it might prove more feasible to develop small permanent satellite health centers, as has been done in Latin America, with a well-designed clinic building staffed by a physician's assistant in residence who could fill the role of a corpsman in an isolated military post or ship. Other allied health professionals could be added as needed. The problem of ready communication with the physician is easily soluble by techniques developed for transmission of data in the space program.

Training the Family Physician

The family physician in the future can expect to play a greater role for continuing comprehensive care of chronic illness, for health maintenance, and for the prevention of disease. These health problems occur in a home setting and involve the entire family where the impact of disease is felt not only biologically, but socially, economically, and emotionally. The training should emphasize ambulatory medical care in an office setting where the physician can be backed up by adequate facilities and paramedical personnel. The number of paramedical technical personnel or members of allied health professions who can effectively work with a single physician to serve as a health team has not been determined. Though great emphasis recently has been placed on programs to increase the number of physicians graduated, it is equally important that three to five times that number of other workers in the health field be trained simultaneously.

The family physician will require hospital privileges so that he can care for episodic acute intercurrent illnesses and for the complications

of existing chronic disease problems. Unless he can admit his patients to a hospital and care for them within his fields of competence and training, continuing comprehensive care cannot be achieved.

More attention must be given during the training period to recognition and treatment of psychosomatic problems, to functional overlay of underlying organic illness, to emotional support of the patient, and to advice on a variety of non-medical problems which effect the acceptance of recommendations for care. Many of these problems involve the cultural and social background of the family, its economic resources, and religious beliefs. At the new Milton S. Hershey Medical Center, this teaching is done through a unique Department of Humanities. The family physician should feel comfortable in the continuing care of mental illnesses suitable for long-term care in the home after evaluation and treatment of acute episodes by a psychiatrist in an institutional setting. Most patients with mental retardation and the mental effects of impairment of cerebral circulation are not physically ill in the usual sense and do not require institutional care. Many are better kept in a familiar family setting in the home. Understanding of the range of human behavior in all age groups is essential as a basis for decisions on care in each clinical discipline. For this reason, the Department of Behavioral Science at Hershey has been organized as a basic medical science unit parallel to physiology, biochemistry, and the other traditional departments.

Role in Community

The physician should be better prepared for health education of the entire family in the home setting, as well as for advice on formal health

education programs conducted in the consolidated schools. He could depend on trained paramedical or allied health workers and self-instructional teaching machines in his office or local hospital to instruct individual patients in prenatal care, nutrition, family planning, self-administration of insulin or other drugs, and such routine techniques as care of the skin and feet in diabetics. Simple measures for better sanitation in and around rural homes can be taught and will reduce the incidence of infectious diseases and parasitism.

The family physician can be expected to do home visits for care of intercurrent, acute illnesses and for follow-up to see that his instructions for continuing care are being followed. Much home follow-up probably can be done better by well-trained family health advisors or community health workers who are familiar with the technical needs of the patient and can adapt the resources of the particular home to specific requirements for nutrition, physical therapy, and other measures. The skills needed can be taught in much less time than is required to train a physician. The numbers of people needed to relieve the physician of repetitive instruction or performance of simple procedures are not likely to be recruited and trained quickly in our present health manpower situation. Furthermore, the problem of their attraction to and retention in rural areas after training has not been faced.

It is becoming increasingly apparent that improvement of the general health of the nation and correction of glaring specific medical problems in certain geographic locations and social groups will not be accomplished solely by increasing the number of physicians and other health workers. Social, economic, and cultural defects must be corrected by education and

other non-medical measures at the same time better health care is delivered. Other nations have required a period of national service of young people. Women are the greatest unused source of potential workers in health fields. Could we require a period of service after high school and before age 35 of both men and women to serve as teachers, technicians, nurses, nutritionists and physicians in rural areas or urban ghettos as they now voluntarily serve in the military, Peace Corps, or VISTA? Training could be done just before the period of actual service as it is now for medical students or as part of it as is done with some house officers. Most young people are idealistic and will cheerfully contribute to betterment of the health of all the people for a limited period of time if all of their peers also serve according to their abilities and interests.

In spite of the changing character of the population in rural areas, the family physician can be expected to continue to care for children and adolescents until they leave for college or work. The pediatric aspects of prevention of disease and health maintenance must be taught. The aging of the population will require attention to geriatric aspects of continuing care, especially to the emotional and social problems encountered with retirement and the frustration of not having younger generations at home to carry on the work. In many instances, loneliness is the major problem and the patient simply needs a sympathetic listener with whom to talk. Lack of time to discuss with the physician symptoms or problems, to understand the nature and implications of a disease, to inquire of possible alternative methods of solution, and to be reassured is a common complaint of patients. It need not be the

physician himself who spends most of the time in listening.

Training of the future family physician should begin early in the first year of the medical curriculum. At the Pennsylvania State University College of Medicine, students are assigned on the first day of the first year in school to families which contain at least four members, one of whom has a chronic illness requiring continuing care. When possible, a family with a child or an elderly patient is selected. The student follows the family throughout his four years in medical school.

Academic Department

The Department of Family and Community Medicine has been organized as a major department of the medical school to help develop a pattern of responsibility for continuing care. It is housed in the Medical Sciences Building at its junction with the Teaching Hospital. The location of the offices and examining rooms for this phase of ambulatory care have been built near student study cubicles for the clinical years of the curriculum and the library to impress on the student the need for continuing self-education, particularly if he is preparing for rural family practice. The facilities are also close to the emergency room on the same floor and to vertical circulation for all laboratories involved in patient care. The students' first introduction to patients is to ambulatory ones needing continuing comprehensive care of chronic illness, rather than to hospitalized patients with acute episodic illness. The family physicians in the Department have full admitting privileges to the Teaching Hospital so that the student can follow all aspects of care of the patient.

The teaching in the other innovative departments, Humanities and Behavioral Science, is expected to intertwine with that in Family and Community Medicine and to extend as a continuous thread through the undergraduate four years. Students will be given increasing graduated responsibility for patients and now make home visits with the practicing family physician. In other schools, preceptorships in family practice, outside of the medical center, have been tried but these should not be necessary at Hershey. Experience has indicated that the required preceptorship is not an effective recruiting device to attract medical students into rural and small town practice. Indeed, it often has a negative effect. Whether the discouraging aspects of the rural preceptorship is due to the timing in the third or fourth year of the medical school curriculum or to other factors, is not clear. It is likely that an experience of this sort would be of more value to the developing physician when he is a house officer and feels better trained and capable of coping with the problems he sees in the absence of the back-up of full medical center facilities. A preceptorship during the residency might have greater value, and be more effective since it would be timed after the student had made a commitment to family practice. Evidence is accumulating that the factors most important in influencing a physician to practice in a rural area are the small size of the community where he grew up; his liking and that of his wife for small town living with superior outdoor recreational opportunities; the influence of medical teachers; and the place where he took his internship and residency.

Since the family physician must solve a series of both diagnostic and therapeutic problems in his everyday practice, the medical student

should receive training in this approach. In the Hershey Medical Center, each student is required by the end of his second year to have completed an original problem-solving project with collection of data that he analyzes. The philosophic objective is not to train the student as a research worker, but to give him practical experience in the scientific method as applied to the solution of everyday medical problems. He learns the difficulty in obtaining dependable data in biological systems which are inherently variable and that data collected on a single individual in a basically variable system do not meet specific criteria. He learns to recognize that he will practice an art and not a science when he applies data collected on an individual to conclusions drawn from study of a group.

Communication

A key problem in the effective organization of future family practice in rural settings is the availability of instantaneous and adequate communication with consultants in a regional medical program or center. In his collection of data for diagnosis, he will be faced with many technical problems involving instrumentation and quantitation of data. The full value of utilizing new techniques for data collection and transmission through miniature sensors and radio or phone transmission developed for the space program have not been exploited. Techniques of this nature will require specially trained paramedical personnel who are familiar with bioengineering methods. Access to a computer may prove to be useful for storage of data, both laboratory and historical in nature. The computer is well-suited to making an evaluation of the probability of a diagnosis when laboratory data and

the history, which could be self-administered from a multiple-choice form, are presented to it. Whether self-administered histories or those obtained by a physician's assistant are as dependable as those collected by the physician himself, is yet to be determined. A computer is not suited to interpreting the silent language contained in gestures, expressions or verbal hints given by a patient. The computer could also interpret objective data, such as an electrocardiogram which could be transmitted over a phone line. Similar extension of this principal to screening of radiographic films, electroencephalograms, and other data is possible.

Continuing Education

Some plan for continuing education of the family physician located in rural or small town areas should be devised. In the organization of the Department of Family and Community Medicine in the Hershey Medical Center, each physician is being required to spend one year in post-graduate training in the four year period before the Teaching Hospital opens. Experience with this limited group has indicated the value of blocks of time in the range of three months for post-graduate education in a medical center. It is estimated that an experience of this type each five years would be an effective means of keeping the family physician up-to-date in his clinical skills and theoretic knowledge. For physicians in a small group practice, whether urban or rural, the absence from the community for this period would pose no problem. For physicians practicing alone, a locum tenens would have to be provided. An arrangement with a nearby medical center could effect an exchange with a senior resident to the benefit of the education of both the

house officer and the practicing physician. In addition, new techniques for day-to-day instruction at the convenience of the practicing physician should be explored. Most likely this type of informal continuing education would be most effective if done at the office. It should be technically possible to devise a simple and relatively inexpensive device which would permit video tapes of teaching exercises to be played through a home television receiver. Short movies can be shown in the new self-contained closed-loop projectors. These projectors also are useful in the instruction of patients and could be tried for that purpose in rural practice with benefit. Teaching machines with programmed instruction could be located in the physician's office with an exchange of the didactic material arranged with a regional library or medical center. These patterns of learning could be started in the study cubicles provided for medical students and house officers at Hershey.

## Conclusion

The future family physician in a rural area or small town need not feel isolated from the mainstream of medicine. Improved transportation of patients and improved communication with medical centers will make available to the practicing physician the skills of specialists and the sophisticated equipment and technicians of regional hospitals.

The education and future training of the family physician should emphasize ambulatory, continuing, comprehensive care of chronic illness as well as health maintenance and prevention of disease. The setting for training should emphasize the impact of illness on the entire family in the sociologic unit, the family, in the home setting.

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